

What Is Claimed Is:

1. A thermal head comprising:  
a thermal insulation layer on a radiative substrate;  
a plurality of heating resistor elements on a top  
face of the thermal insulation layer;  
a power supplier that includes an individual  
electrode and a common electrode connected to the heating  
resistor elements to supply power to a heating resistor;  
and

a protection layer that covers surfaces of at least  
the heating resistor elements and the power supplier,

wherein the thermal insulation layer includes a  
lamination of an inorganic thermal insulation layer having  
a ceramic containing Si, transition metal, and one of  
oxygen and nitrogen on an organic thermal insulation layer  
having polyimide resin.

2. The thermal head according to claim 1, wherein  
a film thickness of the organic thermal insulation layer  
is in a range from 10 to 30  $\mu\text{m}$ .

3. The thermal head according to claim 1, wherein  
a film thickness of the inorganic thermal insulation layer  
is in a range from 5 to 20  $\mu\text{m}$ .

4. A thermal head comprising:

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a thermal insulation layer on a radiative substrate;  
a plurality of heating resistor elements on a top  
face of the thermal insulation layer;

a power supplier that includes an individual  
electrode and a common electrode connected to the heating  
resistor elements to supply power to a heating resistor;  
and

a protection layer that covers surfaces of at least  
the heating resistor elements and the power supplier,

wherein the thermal insulation layer includes a  
lamination of an inorganic thermal insulation layer having  
a ceramic containing Si, transition metal, and one of  
oxygen and nitrogen on an organic thermal insulation layer  
having polyimide,

wherein an inorganic protection layer that includes  
an oxide of one of: one of Si and Al, nitride, and carbide  
is additionally formed on a top face of the inorganic thermal  
insulation layer, and

wherein the heating elements are formed on a top  
face of the inorganic protection layer.

5. The thermal head according to claim 4, wherein  
an organic thermal insulation layer comprising a glaze  
is additionally formed on a bottom face of the organic  
thermal insulation layer.

6. The thermal head according to claim 4, wherein

a film thickness of the organic thermal insulation layer is in a range from 10 to 30  $\mu\text{m}$ .

7. The thermal head according to claim 4, wherein a film thickness of the inorganic high insulation thermal protection layer is in a range from 5 to 20  $\mu\text{m}$ .

8. A thermal head comprising:

a thermal insulation layer on a radiative substrate;

a plurality of heating resistor elements formed on a top face of the thermal insulation layer;

a power supplier including an individual electrode and a common electrode connected to the heating resistor elements to supply power to a heating resistor; and

a protection layer that covers surfaces of at least the heating resistor elements and the power supplier,

wherein the thermal insulation layer includes a lamination of an inorganic thermal insulation layer having a ceramic containing Si, transition metal, and one of oxygen and nitrogen on an organic thermal insulation layer that includes polyimide resin, and

wherein the protection layer is formed with a ceramic film containing the same material as that of the inorganic thermal insulation layer.

9. The thermal head according to claim 8, wherein a film thickness of the inorganic thermal insulation layer

is in a range from 5 to 20  $\mu\text{m}$ , and a film thickness of the protection layer is in a range from 1 to 3  $\mu\text{m}$ .

10. A thermal head comprising:

a thermal insulation layer on a radiative substrate;

a plurality of heating resistor elements on a top face of the thermal insulation layer;

a power supplier having an individual electrode and a common electrode connected to the heating resistor elements to supply power to a heating resistor; and

a protection layer that covers surfaces of at least the heating resistor elements and the power supplier,

wherein the thermal insulation layer includes an organic thermal insulation layer containing polyimide resin, and

wherein a thermal diffusion layer is formed on a top face of the heating resistor elements with interposition of an electric insulation film.

11. The thermal head according to claim 10, wherein the thermal diffusion layer comprises high melting point metal.

12. A thermal head comprising:

a thermal insulation layer on a radiative substrate;

a plurality of heating resistor elements on a top face of the thermal insulation layer;

a power supplier including an individual electrode and a common electrode connected to the heating resistor elements to supply power to a heating resistor; and

a protection layer that covers surfaces of at least the heating resistor elements and the power supplier,

wherein the thermal insulation layer includes an organic thermal insulation layer having a polyimide resin, and

wherein a thermal diffusion layer is formed on bottom faces of the heating resistor elements with interposition of an electric insulation film.

13. The thermal head according to claim 12, wherein the thermal diffusion layer comprises a high melting point metal.